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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/936,802	03/22/2002	James L. Tangler	NREL 99-17	1540

7590 12/04/2002

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EXAMINER

VERDIER, CHRISTOPHER M

ART UNIT

PAPER NUMBER

3745

DATE MAILED: 12/04/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/936,802	TANGLER ET AL.	
	Examiner Christopher Verdier	Art Unit 3745	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

**A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM
THE MAILING DATE OF THIS COMMUNICATION.**

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) Responsive to communication(s) filed on _____.
- 2a) This action is **FINAL**. 2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) Claim(s) 1-10 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) Claim(s) 5 is/are allowed.
- 6) Claim(s) 1 and 9 is/are rejected.
- 7) Claim(s) 2-4, 6-8 and 10 is/are objected to.
- 8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on 22 March 2002 is/are: a) accepted or b) objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) The proposed drawing correction filed on _____ is: a) approved b) disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) All b) Some * c) None of:
 1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. _____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

- 14) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) The translation of the foreign language provisional application has been received.
- 15) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) Notice of References Cited (PTO-892)
- 2) Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.
- 4) Interview Summary (PTO-413) Paper No(s). _____.
- 5) Notice of Informal Patent Application (PTO-152)
- 6) Other: _____

Oath/Declaration

The oath or declaration is defective. A new oath or declaration in compliance with 37 CFR 1.67(a) identifying this application by application number and filing date is required. See MPEP §§ 602.01 and 602.02.

The oath or declaration is defective because:

It improperly claims benefit under 35 USC 119 to the wrong application number PCT/US00/01742. The correct application number should be PCT/US00/01434, and Applicant should have indicated which subsection of 35 USC 365 benefit thereof is claimed, rather than under 35 USC 119.

It improperly claims benefit under 35 USC 120 to the wrong provisional application number 60/148,483 and lists the wrong date thereof. The correct provisional application number should be 60/118,985 filed on February 8, 1999, and Applicant should have claimed priority thereof under 35 USC 119(e).

Drawings

Figure 1 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Specification

The specification is objected to as failing to provide proper antecedent basis for the claimed subject matter. See 37 CFR 1.75(d)(1) and MPEP § 608.01(o). Correction of the following is required:

- claims 3, 6, and 9 recite that the blade is 3 to 10 meters in length. There is no antecedent basis in the specification for this feature.

The disclosure is objected to because of the following informalities: Appropriate correction is required.

Page 1, line 1 should identify the provisional application 60/118,985 by serial number, filing date, and indicate the type of priority thereof which is claimed.

On page 1, line 12, "is 15% cord thick" should be changed to -- has a chord thickness of 15% --.

On page 3, line 24, there is no brief description of figures 2-3.

On page 3, line 30, "." (first occurrence) should be changed to -- ; see --.

On page 4, line 12, "." (first occurrence) should be changed to -- ; see --.

On page 5, line 18, "1" should be changed to -- 2 --.

On page 5, line 23, "1" should be changed to -- 2 --.

On page 7, line 20, "1" should be changed to -- 3 --.

On page 7, line 24, "1" should be changed to -- 3 --.

Claim Objections

Claims 6-8 and 10 are objected to because of the following informalities: Appropriate correction is required.

In claim 6, line 1, "root region" should be deleted.

In claim 7, line 2, "comprises" should be change to -- comprising --.

In claim 7, line 3, "the" (second occurrence) should be deleted.

Claim 7 should end with a period.

In claim 8, line 3, "an" should be changed to -- a --.

In claim 10, line 2, "comprises" should be change to -- comprising --.

In claim 10, line 3, "the" (second occurrence) should be deleted.

Claim 10 should end with a period.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 9 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. In claim 9, line 1, "the tip region" lacks antecedent basis. It appears that claim 9 should properly depend from claim 8; note that "the tip region" should be deleted.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(f) he did not himself invent the subject matter sought to be patented.

Claim 1 is rejected under 35 U.S.C. 102(a) as being anticipated by Applicants' Prior Art table I, NACA 63₂-615 airfoil (page 9 of the instant specification, lines 13-20). Note the airfoil therein which inherently has a blade, with a root and tip region, and a family of airfoils comprising an airfoil in the root region of the blade with a Reynolds number of 500,000 and an airfoil in the tip region of the blade with a Reynolds number of 1,000,000. The maximum coefficient of lift at the tip region is 1.25, and the maximum coefficient of lift at the root region is 1.20. These maximum lift coefficients are considered to be largely insensitive to roughness effects, because it is known in the art that maximum lift coefficients of 1.0 to 1.7 are largely insensitive to roughness effects (see, for example, U.S. Patent 5,562,420). Note that the limitation in claim 1, line 1 of "for a blade of a cooling-tower fan" is a recitation of intended use. A recitation of intended use of the claimed invention must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim. In a claim drawn to a process of making, the intended use must result in a manipulative difference as compared to the prior art. See *In re Casey*, 152 USPQ 235 (CCPA 1967) and *In re Otto*, 136 USPQ 458, 459 (CCPA 1963). In the NACA 63₂-615 prior art airfoil, the "NACA" designation used is from the National Advisory Committee for Aeronautics, which is an organization of the United States. Because the prior art NACA 63₂-615 airfoil has the designation "NACA 63₂-615", the invention was known by others in this country, before the invention thereof by the applicant.

Claim 1 is rejected under 35 U.S.C. 102(b) as being anticipated by Applicants' Prior Art table I, NACA 63₂-615 airfoil (page 9 of the instant specification, lines 13-20). Note the airfoil therein which inherently has a blade, with a root and tip region, and a family of airfoils comprising an airfoil in the root region of the blade with a Reynolds number of 500,000 and an airfoil in the tip region of the blade with a Reynolds number of 1,000,000. The maximum coefficient of lift at the tip region is 1.25, and the maximum coefficient of lift at the root region is 1.20. These maximum lift coefficients are considered to be largely insensitive to roughness effects, because it is known in the art that maximum lift coefficients of 1.0 to 1.7 are largely insensitive to roughness effects (see, for example, U.S. Patent 5,562,420). Note that the limitation in claim 1, line 1 of "for a blade of a cooling-tower fan" is a recitation of intended use as set forth above. Page 3, lines 30 of the instant application state that Borst analyzed the NACA 63₂-615 airfoil in a publication dated 1979. Therefore, the invention was described in a printed publication more than one year prior to the date of application for patent in the United States. Because the NACA 63₂-615 airfoil is a standardized airfoil, it possessed the above Reynolds numbers and maximum coefficients of lift at the time of the publication by Borst in 1979.

Claim 1 is also rejected under 35 U.S.C. 102(f) because the applicant did not invent the claimed subject matter. Note Applicants' Prior Art table I, NACA 63₂-615 airfoil (page 9 of the instant specification, lines 13-20). Note the airfoil therein which inherently has a blade, with a root and tip region, and a family of airfoils comprising an airfoil in the root region of the blade with a Reynolds number of 500,000 and an airfoil in the tip region of the blade with a Reynolds number of 1,000,000. The maximum coefficient of lift at the tip region is 1.25, and the

maximum coefficient of lift at the root region is 1.20. These maximum lift coefficients are considered to be largely insensitive to roughness effects, because it is known in the art that maximum lift coefficients of 1.0 to 1.7 are largely insensitive to roughness effects (see, for example, U.S. Patent 5,562,420). Note that the limitation in claim 1, line 1 of "for a blade of a cooling-tower fan" is a recitation of intended use as set forth above. Because Applicants' Prior Art table I, NACA 63₂-615 airfoil discloses the subject matter of claim 1 as being prior art, the applicant did not invent the claimed subject matter of claim 1.

Prior Art

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Tangler (5,562,420; 6,068,446; 5,417,548) is cited to show families of airfoils with various Reynolds numbers and maximum lift coefficients.

Noonan is cited to show airfoils having various lift coefficients and Mach numbers.

Rodde is cited to show airfoil sections with various thicknesses and lift coefficients.

Parker is cited to show a fan having an airfoil with x/c and y/c values.

"NREL Airfoil Families for HAWTS" is cited to show families of airfoils with various Reynolds numbers and maximum lift coefficients.

Allowable Subject Matter

Claim 5 is allowed.

Claims 6-8 and 10 contain allowable subject matter. Applicant is reminded to correct the informalities therein.

Claims 2-4 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claim 9 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, second paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Christopher Verdier whose telephone number is (703)-308-2638. The examiner can normally be reached on Monday-Friday from 10:00-6:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edward K. Look can be reached on (703) 308-1044. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9302 for regular communications and (703) 872-9303 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0861.

C.V.
December 1, 2002

christopher
Christopher Verdier
Primary Examiner
Art Unit 3745